

## Office Action Summary

Application No.

10/530,975

Applicant(s)

WU ET AL.

Examiner

KYLE BAUMSTEIN

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. <u>20091015</u> .                           |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application  |
| Paper No(s)/Mail Date <u>8/21/2009</u> .   | 6) <input type="checkbox"/> Other: _____.                          |

## **DETAILED ACTION**

### ***Claim Analysis***

Upon examination of the specification and a conversation with David Cleveland on 10/15/2009, the Examiner has determined that claims 12 and 13 are incorrectly written in the pending application. The claims in question, although written inclusively, should be in the alternative. Therefore, claim 12 will be examined as a diisocyanate selected from an aliphatic or aromatic diisocyanate and claim 13 will be examined as a polyol selected from a polyester, polyether, or polycarbonate polyol.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8-13, 17-19, and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Okamoto et al. (Urethane/Acrylic Composite Polymer Emulsions).

Okamoto teaches blends of waterborne urethane and acrylic polymer systems which can be used as floor coatings and paper finishes, among other applications. The disclosed blend functions as a single package, ambient temperature crosslinking emulsion (see Abstract). The system is a polymer blend composed of an acrylic polymer emulsion containing keto or aldo groups and a polyurethane dispersion containing hydrazine groups (col. 2, line 19-23). The acrylic polymer is prepared using

Art Unit: 1796

2-ethylhexylacrylate, methyl methacrylate, styrene, and acrylic acid, as well as diacetone acrylamide (DAAM). The keto group from DAAM provides the reactive functional group for the acrylic polymer component. The calculated glass transition temperature of the acrylic emulsion preferably ranges from -10 to 10 °C (col. 3, line 18-40). Polyurethane polymers to be used in the disclosed composition are prepared from adipic acid, 1,6-hexanediol, 2,2-dimethylol propionic acid, cyclohexane dimethanol, and 4,4'-dicyclohexyl methane diisocyanate (col. 3, line 46-48). Such a composition reads on that of instant claims 12 and 13 wherein an aliphatic diisocyanate and a polyester polyol is used. Polyurethanes with hydrazine groups at the terminus of the polymer were obtained by adding an excess of hydrazine (col. 2, line 59-col. 3, line 12). The reference discloses solvent resistance studies wherein the ratio of acrylic polymer/polyurethane polymer is varied (Fig. 7). A composition comprising a 1:1 ratio of hydrazine functionalized polyurethane and diacetone functionalized polyacrylate is clearly shown (System A). Such a composition reads on the instantly claimed compositions comprising 10 to 90 weight percent of both the vinyl addition and polyurethane polymers. Films were prepared by casting the aqueous emulsions onto glass plates followed by drying for 1 week at ambient temperature (~23 °C) (col. 4, line 35-38). Being that the disclosed compositions cure at ambient temperature, it is assumed that the drying step of the coating formation process acts as a curing/crosslinking step. Although the reference does not generically disclose the use of additives in the disclosed composition, the paint formulations given in Table 3 cite the

Art Unit: 1796

addition of pigments and thickeners which clearly reads on the limitation of instant claim 17.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (Urethane/Acrylic Composite Polymer Emulsions) as applied to claims 1-6, 8-13, 17-19, and 24-27 above, and further in view of Fowler et al. (US Pat. 4978708).

Okamoto teaches the aforementioned urethane/acrylate dispersion comprising a diactone-functionalized acrylic polymer and a hydrazide-functionalized polyurethane polymer. The disclosed composition has been shown to be substantially similar to that as claimed in the prior art. Suitable acrylate polymers comprise 2-ethylhexylacrylate, methyl methacrylate, styrene, and acrylic acid. However, the prior art does not disclose a preferred acid number for said acrylate polymer.

Fowler teaches aqueous-based coating compositions comprising anionic polyurethane resins and anionic acrylic resin resins. The acrylic copolymers to be used in the invented composition consist of 60-90% by weight of one or more monomers selected from the group consisting of a C<sub>1-20</sub> alkyl acrylates, methacrylates, and styrene as well as 5-20% by weight of an  $\alpha,\beta$ -unsaturated carboxylic acid selected from a group

Art Unit: 1796

including acrylic acid. According to the disclosure, the amount of carboxylic acid monomer used is chosen so that the anionic acrylic copolymer possesses an acid number preferably between about 30 and 70. Best dispersion results are obtained when the acid number falls within this range (col. 12, line 33-55). Therefore, it would have been obvious to one having ordinary skill in the art to have prepared the acrylic polymer generically disclosed in Okamoto having an acid number within the range disclosed in Fowler so as to obtain an ideal dispersion.

Claims 14-16, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto et al. (Urethane/Acrylic Composite Polymer Emulsions) as applied to claims 1-6, 8-13, 17-19, and 24-27 above, and further in view of Irle et al. (US Pat. 6063861).

Okamoto teaches the aforementioned urethane/acrylate dispersion comprising an acrylic polymer dispersion and a polyurethane polymer dispersion. The disclosed composition can be used to produce a variety of coatings including paper finishes. Furthermore, the composition has been shown to be substantially similar to that as is claimed in the instant application. However, the reference does not mention the inclusion of a crosslinking agent.

Irle teaches self crosslinkable polyurethane-polyacrylate hybrid dispersions comprising a polyurethane dispersion and a polyacrylate polymer as well as a difunctional amine (see abstract). The reference discloses that it has been described that polyurethane-polyacrylate hybrid dispersion which have carbonyl functional groups

Art Unit: 1796

and polyfunctional amines form a stable, self-crosslinking, one component composition (col. 2, line 4-11). It has been held that the selection of a known material based on its suitability for its intended use supports a *prima facie* case of obviousness (*Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)). Therefore, it would have been obvious to have added a polyamine crosslinking component to the composition disclosed by Okamoto to form a storage-stable, self-crosslinking, one component composition. Regarding the amount of said polyamine used, although a preferred amount of amine is not generically disclosed in the reference, examples B3-B7 (col. 7, line 40-56) show the use of 0.73 to 12.8 wt. % of diethylenetriamine in the polyurethane-polyacrylate dispersions. Such amounts fall within the range claimed in the instant application.

Furthermore, regarding claim 23, the composition taught by Irle can be used as a binder in compositions for coating wood (col. 6, line 26-31). Being that the compositions taught by Irle and Okamoto are analogous to each other, it would have been obvious to one having ordinary skill in the art to have tried using the composition taught by Okamoto further comprising the crosslinker taught by Irle as a coating composition for wooden surfaces.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KYLE BAUMSTEIN whose telephone number is (571)270-5467. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KBB/

/Randy Gulakowski/  
Supervisory Patent Examiner, Art Unit 1796